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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/893,803 | 06/28/2001 | Bharath Rangarajan | F0660 | 7099 |

7590 05/15/2003

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT PAPER NUMBER

2877

DATE MAILED: 05/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,803

Applicant(s)

RANGARAJAN ET AL.

Examiner

Richard A Rosenberger

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1. Newly submitted claim 30 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 1-29 are directed to a system and method for regulation of an etch process in which, in various manners, etching or means for etching is claimed, and optical test or the step of performing an optical step is claimed, and the step of or means for determining if adjustments are needed to the etch process and/or controlling the etching or means for etching is claimed. This invention includes claims 1-14, for which an action on the merits was prepared.

Claim 30 is directed to a data packet, which is not a system or a method as in claims 1-29. Claim 30 does not require etching or means for etching, and does not require determination of a need for adjustment or control of, or means for controlling, an etch process. It is set forth in claim 30 that the data packet "facilitates semiconductor device manufacture", but "semiconductor device manufacture" encompasses more than etching, and can be facilitated in ways other than control of etching.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03. Claim 30 should be cancelled; it is noted that such cancellation will

in no way prejudice the filing of claim 30 or the subject matter thereof in a divisional application.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt (US 5,629,772) in view of the acknowledged prior art of the instant specification and Coronel et al (US 5,658,418).

Ausschnitt teaches regulation of an etch process using optical measurements. The reference at several points mentions that the prior art and then invention uses the measurements for control of the process, for example, the abstract, line 13 and column 4, lines 51-54. The references at several points mentions such control is usable with etching, for example column 1, line 7 and column 7, line 41. The reference discloses optical measurements, for example column 8, line 7 and column 9, lines 27-35. As the results of the optical test will be used control the etch process, it is necessary that the system determine whether adjustments are needed and what those adjustments are.

Coronel et al shows that it is known that optical measurements can be made in situ in etching processes for control of the etching process; see Coronel et al, column 17, lines 53-58 ("...it also allows to directly control any drift in the etching process parameters, ...").

Neither Ausschnitt nor Coronel et al shows a scatterometer as the optical measuring apparatus, they do show that it is known to use optical measurements to monitor and control etching, and it would have been obvious to use other known types of optical measurements for such monitoring because other types of optical monitoring are known and are known to measure parameters of interest within an etching process.

The instant specification notes that scatterometry a known optical technique for such measurements; see page 12, lines 12-16, which discloses states that scatterometry is "well-known in the art". As scatterometry is a well-known optical measuring system known to be useful for measuring the parameters of interest in etching processes, it would have been obvious to use such measurements as taught by Ausschnitt and Coronel to monitor and control an etching process.

The Ausschnitt reference discloses partitioning the wafer into a plurality of regions (see figure 10), etching features in at least one of the portions, measuring the etched features using optical measurements, and controlling the etching to regulate the etching.

Using scatterometry to measure the sort of features known to be measurable with scatterometry would have been obvious.

4. The remarks filed 28 February 2003 have been considered but have not been found to be persuasive. It is, of course true that neither the Ausschnitt nor Coronel references show scatterometry as the optical test being used to control the etch process, but the rejection is not based upon any allegation that either does. Both do teach that optical tests can be used to control etching process. Although they do show other optical tests to implement the control, neither teaches nor suggests that their particular tests are the only possible tests that are or could be useful for such control. The scatterometry of the instant claims is an otherwise known test, and those in the art, knowing of scatterometry, would have found it obvious to use this known test to control an etching process as shown to be known in Ausschnitt and Coronel.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

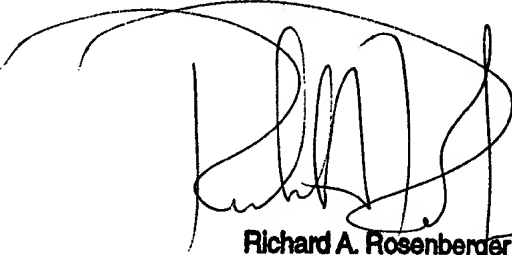
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 308-7722.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804. The examiner's normal work schedule is 8:00 to 4:30 eastern time, Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger
13 May 2003



Richard A. Rosenberger
Primary Examiner